

## PREVALENCE RATES OF URODYNAMIC STRESS INCONTINENCE, BLADDER OVERSENSITIVITY/DETRUSOR OVERACTIVITY OR BOTH AND THEIR CLINICAL AND URODYNAMIC FINDINGS IN WOMEN WITH ≥STAGE II CYSTOCELE

### Hypothesis / aims of study

Prevalence rates of urodynamic stress incontinence (USI), bladder oversensitivity (BO) /detrusor overactivity (DO) or both and their related clinical and urodynamic findings in women with ≥ pelvic organ prolapse quantification stage II cystocele are important for clinical consultation. Thus, the aim of this study was to elucidate the above findings and between-group associations.

### Study design, materials and methods

Between November 2011 and January 2017, medical records of all women with ≥stage II cystocele who underwent 20-minute pad testing and urodynamic studies in a medical center were reviewed. ANOVA test and post-hoc testing with bonferroni's correction were used for statistical analysis. USI included evident USI and occult USI, which were classified according to pad weight before and after prolapse reduction [1]. BO was defined as <300 mL of the volume at strong desire to void during filling cystometry. Those women without USI, BO or DO were allocated into the no demonstrated USI+BO/DO group.

**Table 1. Prevalence, clinical and urodynamic findings of USI, BO and DO among women with ≥ stage II cystocele (n=480)**

Variables	USI (a, n=52, 10.8%)	USI+BO/DO (b, n=321, 66.9%)	BO/DO (c, n=88, 18.3%)	ND (d=19, 4.0%)	USI+BO/DO	P†	Post hoc test‡
Age (years)	65.5±9.0	65.7±10.5	65.8±8.4	65.1±7.7		0.99	
Parity	2.9±1.1	3.3±1.3	3.4±1.4	2.9±1.1		0.16	
BMI (kg/m <sup>2</sup> )	24.8±3.2	24.1±3.2	24.9±4.1	24.1±2.8		0.19	
Cystocele stage	2.4±0.6	2.4±0.6	2.5±0.6	2.5±0.5		0.62	
Uterine prolapse stage	1.4±1.3	1.3±1.3	1.3±1.4	1.3±1.1		0.96	
Rectocele stage	0.9±1.1	1.0±1.0	1.2±1.0	1.4±0.9		0.25	
≥ stage II uterine prolapse	25 (48)	142 (44)	40 (45)	8 (42)		0.95	
Pad weight before reduction	12.3±25.0	24.1±37.2	0.3±0.3	0.3±0.3		<0.001	b vs. c, p<0.001 b vs. d, p=0.009
Pad weight after reduction (g)	22.0±34.0	34.1±42.8	0.3±0.3	0.4±0.3		<0.001	a vs. c, b vs. c, b vs. d, p<0.01
Qmax (mL/s)	24.4±12.1	19.1±9.9	17.8±9.3	24.7±12.1		<0.001	a vs. b, a vs. c, c vs. d, p<0.05
Voided volume (mL)	325±148	251±122	260±126	379±173		<0.001	a vs. b, b vs. d, c vs. d, p<0.01 a vs. c, p=0.03
Post-void residual (mL)	59±64	46±28	52±35	46±29		0.08	
Voiding time (s)	42±15	39±21	44±20	43±18		0.10	
Strong desire (mL)	331±26	236±45	244±48	331±34		<0.001	a vs. b, a vs. c, b vs. d, c vs. d, p<0.001
PdetQmax (cmH <sub>2</sub> O)	23.3±18.9	22.2±16.8	23.9±16.0	24.8±11.7		0.98	
MUCP (cmH <sub>2</sub> O)	62.20±33.2	61.2±37.0	67.2±38.1	89.2±43.4		0.01	a vs. d, p=0.04 b vs. d, p=0.009
FPL (cm)	2.6±0.7	2.5±0.7	2.5±0.7	2.5±0.6		0.71	
PTR at MUP (%)	117±39	116±53	117±44	119±50		0.99	
Daytime frequency (72 h)	23.0±6.5	26.8±9.6	24.9±8.3	26.6±6.9		0.07	
Nocturia (72 h)	3.3±2.7	4.5±3.5	4.1±3.1	3.4±1.7		0.11	
Urgency (72 h)	3.0±5.6	6.4±8.4	4.6±8.7	2.7±5.5		0.03	
Incontinence (72 h)	0.6±2.6	1.7±4.6	0.2±1.0	1.6±5.0		0.02	b vs. c, p=0.03
Voided volume (72h, mL)	6300±2477	4987±2212	4964±2086	6694±2444		<0.001	a vs. b, a vs. c, b vs. d, p<0.05
Fluid intake (72h, mL)	5694±2108	4758±1954	4781±1703	6253±1819		0.002	a vs. b, p=0.03 b vs. d, p=0.04

Values are presented as mean ± standard deviation or number (percentage). BMI = body mass index; BO = bladder oversensitivity; DO = detrusor overactivity; FPL = functional profile length; MUCP = maximum urethral closure pressure; ND= no demonstrated; PdetQmax = detrusor pressure at maximum flow rate; PTR at MUP = pressure transmission ratio at maximum urethral pressure; Qmax = maximum flow rate; USI = urodynamic stress incontinence. †ANOVA test. ‡Post hoc test with Bonferroni's correction.

**Table 2. Scores of lower urinary symptoms and King's Health Questionnaires of USI, BO and DO among women with ≥ stage II cystocele (n=480)**

Variables	USI (a, n=52)	USI+BO/DO (b, n=321)	BO/DO (c, n=88)	ND USI+BO/DO (d=19)	P†	Post hoc test‡
PPBC	3.2±1.5	3.6±1.4	3.1±1.3	2.8±1.3	0.006	b vs. c, p=0.03
OABSS	3.9±2.8	6.4±3.6	4.5±3.1	3.8±2.7	<0.001	a vs. b, p<0.001 b vs. c, p<0.001 b vs. d, p=0.01
USS	1.3±1.0	2.0±1.1	1.6±1.1	1.3±0.8	<0.001	a vs. b, p=0.002
UDI-6	4.9±4.0	6.6±4.3	4.2±3.3	2.9±2.1	<0.001	a vs. b, b vs. c, b vs. d, p<0.05
IIQ-7	4.5±4.7	7.0±5.9	5.6±5.2	3.3±4.4	0.001	a vs. b, p=0.02
GHP	47±20	49±20	48±19	38±20	0.14	
Incontinence impact	28±28	45±32	35±28	31±28	<0.001	a vs. b, p=0.002
Role limitations	24±26	40±32	29±29	18±29	<0.001	a vs. b, b vs. c, b vs. d, p<0.05
Physical limitations	31±30	43±33	34±28	22±28	0.002	-
Social limitations	17±26	29±31	22±25	10±27	0.004	-
Personal relationships	16±21	23±30	20±29	3±7	0.12	
Emotions	26±25	36±30	28±26	23±27	0.02	-
Sleep / energy	26±23	37±29	25±21	19±22	<0.001	a vs. b, b vs. c, b vs. d, p<0.05
Severity measures	21±24	30±27	16±18	13±14	<0.001	b vs. c, p<0.001 b vs. d, p=0.03

Values are presented as mean ± standard deviation. GHP = general health perceptions; IIQ-7 = Incontinence Impact Questionnaire; OABSS = overactive bladder symptoms score; PPRC: patient perception of bladder condition; UDI-6 = Urogenital Distress Inventory questionnaire; USS = urgency severity scales. The other abbreviations are as in Table 1. †ANOVA test. ‡Post hoc test with Bonferroni's correction.

### Results

A total of 480 women with ≥ stage II cystocele were found to have coexistent USI (n=373, 77.7%), BO (n=403, 84.0%) or DO (n=73, 15.2%). They were allocated into 4 groups: pure USI (n=52, 10.8%), USI+ BO/DO (n=321, 66.9%), BO/DO (n=88, 18.3%) and no demonstrated USI+BO/DO (n=19, 4.0%) (Table 1). Women with coexistent USI+BO/DO or BO/DO had significantly smaller maximum flow rate, voided volume, strong-desire volume and total voided volume (Table 1).

Women in the USI+BO/DO group had significantly higher scores of patient perception bladder condition, overactive bladder symptoms score, urgency severity symptoms score, urogenital distress inventory and incontinence impact questionnaire, and the scores of incontinence impact, role limitations, sleep/energy and severity measures of King's Health Questionnaire (Table 2).

### Interpretation of results

Coexistent USI, BO or DO are not uncommon in women with ≥stage II cystocele, and is associated with poorer health related quality of life, especially for USI+BO/DO group.

### Concluding message

SUI, BO or DO are not uncommon in women with ≥stage II cystocele and is associated with poorer health related quality of life. Pad testing and urodynamic studies before cystocele repair may help unmask concomitant abnormal lower urinary tract dysfunctions and provide proper pre-treatment consultation and management.

### References

1. Chang TC, Hsiao SM, Chen CH, Wu WY, Lin HH. Utilizing preoperative 20-minute pad testing with vaginal gauze packing for indicating concomitant midurethral sling during cystocele repair. *Eur J Obstet Gynecol Reprod Biol* 2014;172:127-30.

### Disclosures

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